

**FEB/FY06**

**FORT LEE**  
Virginia

**Army Defense Environmental  
Restoration Program  
Installation Action Plan**

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## Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Cleanup Program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive, installation-wide approach, with associated costs and schedules, to conduct investigations and necessary remedial actions (RAs).

In an effort to coordinate planning information between the restoration manager, US Army Environmental Center (USAEC), Fort Lee, the Installation Management Agency (IMA), the executing agency, and the regulatory agency, an IAP was completed. The IAP is used to track requirements, schedules and tentative budgets for all Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

The following agencies contributed to the formulation and completion of this Installation Action Plan during a planning workshop held on 10 February 2006:

### **Company/Installation/Branch**

Engineering & Environment, Inc. (EEI) for USAEC

Fort Lee

US Army Corps of Engineers, Baltimore District (CENAB)

USAEC

Virginia Department of Environmental Quality (VDEQ)

AEDB-R	Army Environmental Database - Restoration
ASR	Archive Search Report
BNA	Base/Neutral/Acid
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
CASCOM&FL	Combined Arms Support Command and Fort Lee
CENAB	US Army Corps of Engineers, Baltimore District
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CTT	Closed, Transferring and Transferred
DERP	Defense Environmental Restoration Program
DD	Decision Document
DMM	Discarded Military Munitions
DoD	Department of Defense
DR	Detonation Range
ER,A	Environmental Restoration, Army
FS	Feasibility Study
FTLE	Fort Lee (as designated in AEDB-R)
FUDS	Formerly Used Defense Sites
FY	Fiscal Year
HRS	Hazard Ranking Score
IA	Installation Assessment
IAP	Installation Action Plan
IMA	Installation Management Agency
INPR	Inventory Project Report
IRA	Interim Remedial Action
IRP	Installation Restoration Program
LF	Landfill
LTM	Long Term Management
MC	Munitions Constituents
MCL	Maximum Contaminant Level
MEC	Munitions and Explosives of Concern
MIF	Military in the Field
MMRP	Military Munitions Response Program
MON	Monitoring
NFA	No Further Action
NPL	National Priorities List
OE	Ordnance and Explosives
PA	Preliminary Assessment
PBC	Performance Based Contract
PCB	polychlorinated biphenyl
POL	Petroleum, Oil & Lubricants
POM	Program Objective Memorandum
ppb	parts per billion
ppm	parts per million
PTF	Petroleum Training Facility
RA	Remedial Action

RA(C)	Remedial Action (Construction)
RA(O)	Remedial Action (Operation)
RAB	Restoration Advisory Board
RAC	Risk Assessment Code
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
REM	Removal
RI	Remedial Investigation
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
SI	Site Inspection
STP	Sewage Treatment Plant
TOX	Total Organic Halogens
TPH	Total Petroleum Hydrocarbons
TRADOC	Training and Doctrine Command
TRC	Technical Review Committee
USACE	United States Army Corps of Engineers
USAEC	United States Army Environmental Center
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VDEQ	Virginia Department of Environmental Quality
VOCs	Volatile Organic Compounds
VWCB	Virginia Water Control Board
UXO	Unexploded Ordnance

**Installation Locale:** The US Army Combined Arms Support Command and Fort Lee (CASCOM&FL) is located in Prince George County, Virginia, south of the City of Hopewell and northeast of the City of Petersburg. The total area encompassed by Fort Lee is 5,673 acres; half of this area has been developed and the remaining half is forested. Base population is comprised of approximately 10,999 permanent military personnel and dependents, approximately 3,940 civilian and contract workers and approximately 5,000 students. Based upon the 2000 census, Petersburg had a population of 33,740 Hopewell had a population of 22,534 and a population of 16,900 was reported for Colonial Heights, located adjacent and to the north of Petersburg. Prince George County had a population of 33,047.

**Installation Mission:** Fort Lee is an active installation owned and operated by the Army and home of the US Army CASCOM&FL which is a major Army Subcommand under the jurisdiction and command of the US Army Training and Doctrine Command (TRADOC). The current mission of CASCOM&FL is to assist the TRADOC Commander with combat and training developments; command, operate and administer the use of resources to accomplish assigned missions; exercise command authority over the US Army Garrison, Fort Lee; and provide base operations support to tenant and satellite units and activities, organizations, units, and personnel of other military departments and commands as required.

**Lead Organization:** IMA – Northeast Region

**Lead Executing Agencies:**

**Investigation/Design Phase Executing Agency:** CENAB

**RA Phase Executing Agency:** CENAB/Norfolk District

**Regulatory Participation**

**Federal:** US Environmental Protection Agency (USEPA) Region III

**State:** VDEQ

**National Priorities List (NPL) Status:** Non-NPL.

**Installation Restoration Advisory Board (RAB)/Technical Review Committee (TRC)/Technical Assistance for Public Participation Status:**

In January 2005, the local community was surveyed for potential interest in establishing a RAB. Based on the results, it was determined that there was not enough community interest to establish and sustain a RAB at this time. The local community will be surveyed again in 2006.

### ***Fort Lee Program Summaries***

#### ***IRP***

Primary Contaminants of Concern: Petroleum, Oil and Lubricants (POL)/ Benzene, Toluene, Ethylbenzene, Xylene (BTEX), Metals, Base/Neutral/Acid (BNAs), Volatile Organic Compounds (VOCs), Pesticides, Herbicides

Affected Media of Concern: Soil, Groundwater, Surface Water

Estimated Date for Response Complete (RC): 2010

Funding to date (up to FY05): \$24,485,700

Current Year Funding (FY06): \$2,062,000

Cost-to-Complete (FY07+): \$5,572,000

#### ***MMRP***

Primary Contaminants of Concern: Unexploded Ordnance (UXO), Ordnance and Explosives (OE), Munitions Constituents (MC)

Affected Media: Soil

Estimated Date for RC: 2017

Funding to date (up to FY05): \$50,000

Current Year Funding (FY06): \$0

Cost-to-Complete (FY07+): \$8,586,000

## Cleanup Program Summary

### ***Installation Historic Activity***

Camp Lee was activated in 1917 and served as a state mobilization and training center during World War I. Immediately after the war, Camp Lee was used for demobilization through 1919, when it was deactivated. After deactivation it became a wildlife preserve until 1940 when Camp Lee was reactivated. The Quartermaster Training Center and School opened at Camp Lee in 1941. In 1950, Camp Lee received permanent status and was named Fort Lee. During the 1950s, permanent facilities were added and airborne logistics training and petroleum training commenced. During reorganization of the Army in 1962, Fort Lee was designated a Class 1 Military Installation under the Second United States Army and was renamed US Army Quartermaster Center and Fort Lee.

In 1966, the Second United States Army was inactivated and Fort Lee became a Class 1 Military Installation under the First United States Army. In 1973, Fort Lee became a major Army Subcommand under the control of TRADOC. In 1988, the US Army Quartermaster Center and Fort Lee was redesignated the US Army Logistics Center (Provisional) and Fort Lee. During the 1990 reorganization of TRADOC, CASCOM&FL was established from the merger of combat development and training development.

### ***Current Cleanup Program Activity at Fort Lee***

Fort Lee is regulated by both the USEPA Region III and VDEQ. Currently, investigations at Fort Lee are being funded under the IRP to ensure compliance with the requirements of federal and state environmental regulations. In Sep 97 the USEPA proposed listing Fort Lee on the NPL and began the formal calculation of a Hazard Ranking Score (HRS). As of Feb 06 USEPA Region III does not appear to be actively pursuing NPL listing of Fort Lee.

In Apr 89, Fort Lee personnel discovered nonaqueous phase liquids floating on the groundwater during excavation at the Petroleum Training Facility (PTF) site and subsequently notified the Virginia Water Control Board (VWCB), which was incorporated into VDEQ. In Jun 89, a preliminary investigation which included the sampling of site soils and groundwater was completed. Based on the results of this investigation, VWCB requested Fort Lee to complete additional investigations to define extent of contamination. Due to delays in initiating these additional investigations, the VWCB issued a Notice of Violation to Fort Lee in Mar 91. This site was remediated in 1993, and was closed out by the VDEQ as of Dec 97.

Responsibility for cleanup of the Reformatory Road Landfill (FTLE-18) was transferred to the Formerly Used Defense Sites (FUDS) program in FY96. Only 25% of this landfill is located on Fort Lee property, the remaining 75% is located on property belonging to the Department of Justice. Fort Lee operated the landfill when it was open (1962-1983), however, the landfill was also used for waste generated by the Petersburg Federal Correctional Facility. As of Jan 99, FTLE-18 was removed from the FUDS program and returned to the Fort Lee IRP program. This was due to an error made when the initial Inventory Project Report (INPR) was prepared by the US Army Corps of Engineers. A second review of the INPR in 1998 determined that not all of the requirements for acceptance into the FUDS program had been met and that reinclusion in Fort Lee's IRP program was required.



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## Cleanup Program Summary

An Installation Assessment (IA) was completed in Apr 82. The assessment included inspection of motor pools, laboratories, photo, medical, and fuels laboratories, and pesticide storage and mixing areas. The IA provided a summary of areas of concern but did not identify a comprehensive list of sites needing investigation.

Fort Lee does not have an Interagency Agreement nor does it have a TRC. Fort Lee's Resource Conservation and Recovery Act (RCRA) permit was revised in 1992 because it became a large waste generator. Fort Lee does not have a RCRA Part B Permit.

### **IRP**

- Prior Year Progress: Continued Long Term Management (LTM) at FTLE-11, 15, and 27. An updated remedial investigation (RI) was completed for FTLE-05. A Draft Feasibility Study (FS) was completed for FTLE-17. A RA was initiated at FTLE-19. The risk assessment for FTLE-24 was updated with the results of the Indoor Air Quality Model calculated using current analytical data.
- Future Plan of Action: A RA will begin at FTLE-06. Monitoring at FTLE-11 15, 24, 25, and 27 continues.

### **MMRP**

- Prior Year Progress: No work planned due to funding constraints.
- Future Plan of Action: The Site Inspection (SI) is planned for FY07.

# FORT LEE

## Installation Restoration Program

**Total Army Environmental Database-Restoration (AEDB-R) Sites/RC Sites:** 32/21

## **Different Site Types**

- 1 Incinerator
- 2 Storage Areas
- 2 Fire/Crash Training Areas
- 14 Landfills
- 1 Waste Treatment Plant
- 3 Disposal Pit/Dry Wells
- 4 Underground Storage Tanks (USTs)
- 2 Unexploded Munitions/Ordnance
- 3 Spill Site Areas

## **Most Widespread Contaminants of Concern:**

POL/BTEX, Metals, BNAs, VOCs, Pesticides, Herbicides

**Media of Concern:** Soil, Groundwater

## **Completed Removal (REM)/Interim Remedial Action (IRA)/RA:**

- UST Removals (Non-Environmental Restoration, Army [ER,A] Funded)
- Petroleum Training Facility (RA)
- Capping-Schuylkill Landfill (Non-ER,A Funded)
- FTLE-11 – Closed Landfill #14 (RA)
- Landfills 4, 5, 6, 7, 11 (IRA)
- FTLE-27 - Open Detonation Range (REM)
- FTLE-05 – Bldg 6203 (IRAs)

## **Total IRP Funding**

Prior Years (up to FY05): .....	\$24,485,700
Current Year Funding (FY06): .....	\$ 2,062,000
Future Requirements (FY07+): .....	\$ 5,572,000
Total: .....	\$32,119,700

## **Duration of IRP**

Year of IRP Inception: 1981  
Year of IRP RC: 2010  
Year of IRP Completion including LTM: 2020

# IRP Contamination Assessment

## *IRP Contamination Assessment Overview*

There are 32 IRP sites at Fort Lee. Twenty of these sites have been recommended for No Further Action (NFA). Current IRP activities include SIs, RI/FSs, remedial design (RD), and IRAs at 13 sites.

In September 1997, the USEPA, in a letter to the VDEQ, proposed that Fort Lee be placed on the NPL and began the formal HRS process. Subsequent contact with the USEPA indicated that the preliminary assessment (PA) package they were using to support HRS scoring had been prepared in 1992 and that it contained many errors. These errors, in fact, made the situation at Fort Lee appear much worse than it really was. In November 1997, Fort Lee and TRADOC personnel met with USEPA Region III in Philadelphia to discuss the HRS process and to make sure that USEPA was using the latest data from the IRP program. Copies of the latest available reports were given to the USEPA to support the HRS scoring process, with other reports following as they were completed. In November 1998, USEPA Region III and VDEQ met at Fort Lee to discuss the status of the HRS Scoring and to review the status of Fort Lee's IRP program. At this time, USEPA could not say when the HRS scoring would be completed. However, USEPA was impressed with the scope of Fort Lee's IRP program and agreed that placing Fort Lee on the NPL would not speed up Fort Lee's cleanup efforts. The VDEQ concurred with this statement. USEPA also stated that there was a possibility that even if Fort Lee scored above the threshold for NPL listing they might recommend that Fort Lee be given status as a "non-NPL Federal Facility with a Federal Facilities Agreement". As of Feb 06, USEPA Region III has neither completed HRS Scoring nor made any recommendations about Fort Lee's status. According to the VDEQ, the USEPA appears satisfied with Fort Lee's progress and will not proceed with placement on the NPL unless the VDEQ decides that it is necessary to ensure cleanup.

Of the sites currently under investigation, the following sites require additional work. A brief discussion follows:

**The Maintenance Building Area (FTLE-24, 25)** has been found to be contaminated with various solvents and POL products. Low levels of contamination are found over perhaps 10 acres, however, significant levels of contamination are found in only a few locations. Three new monitoring wells were installed in FY06 and subsets of the existing monitoring wells were sampled to determine if contaminant levels had changed since the RI had been completed. These data were also used to update the risk assessment with the Indoor Air Quality Model. Results indicate that, in general, contaminant levels have remained steady or are decreasing. While monitoring will probably be required at the site, the RA at the site has not yet been determined by the VDEQ. Additional work at this site will be performed under a Performance Based Contract (PBC) scheduled for award in FY07.

Groundwater at **Landfill 10 (FTLE-19)** is contaminated with pesticides above maximum contaminant levels (MCLs). A RI/FS was completed in 1999 and found that risk levels are low. The VDEQ has indicated that the site should be closed under VA Solid Waste Regulations. A landfill cover thickness study was undertaken in Oct 00 in order to determine the thickness of the existing cover material. Cover thickness was found to be less than the required two feet over most of the landfill. RA currently underway at the site includes removal of large trees, regrading to ensure positive drainage, covering the waste

cell areas with two feet of clean cover, and using institutional controls to limit access to the site. LTM will also be required.

**The Former Sewage Treatment Plant (FTLE-06)** has also been found to be contaminated with pesticides. The RI was completed in 1998 and the FS was completed in Feb 00. A RD was completed in 2004. A landfill cover thickness study undertaken in Oct 00 found a previously unknown 3-4 acre World War II era solid waste landfill in the northeastern portion of the site. The VDEQ has indicated that the site should be closed under VA Solid Waste Regulations. RA will include removal of large trees from the site, regrading to ensure positive drainage, covering the waste cell area with two feet of clean cover, and using institutional controls to limit access to the site. LTM will also be required. The RA and LTM are scheduled to be awarded under a PBC in FY07. An Environmental Baseline study of Baileys Creek was completed in 1998 and found that there was little evidence of contamination from IRP sites near the Creek.

**The Outdoor Recreation Area (FTLE-17)**, which is the site of three former landfills, required an IRA to halt erosion of the landfill by an adjacent stream. This IRA was successfully completed in Nov 99. A Draft FS is underway and will be supplemented with the results of a landfill cover thickness study, to be undertaken in 2006. Repairs to the landfill cover will be required to solve problems caused by settling and slumping in some of the waste cells. Completion of the FS, RD, RA, and LTM will be performed under a PBC scheduled for award in FY07.

The RI at the **Pesticide Mixing Area (FTLE-05)** was updated in FY05 and found that there was VOC (carbon tetrachloride/chloroform) contamination within the boundaries of the site, but with an apparent upgradient source. This contamination appeared to be unrelated to prior activities at the Pesticide Mixing Area, however, it was determined that the cause of the VOC contamination was an old Fire Station which was located at the apparent source of the VOC plume from the early 1940s until the early 1970s. Additional fieldwork at the site in 2002 confirmed that the source of the plume was an old storage shed located behind the former Fire Station. Because this contaminant was not dealt with in the initial RI, the VDEQ requested that the RI risk assessment, and fate and transport model, be updated to include the new data. When the updated RI is finalized, the FS, RD, RA, and LTM will be bundled and awarded as part of the PBC scheduled for award in FY07.

RI/FSs for **Landfill 8 (FTLE-16)**, the **Petroleum Lab/Firefighter Training Pit (FTLE-31)**, and the **Area 10,000 Barracks Landfill (FTLE-32)** will be performed under a PBC scheduled for award in FY07.

If required beyond FY06, LTM currently underway at Landfill 14 (FTLE-11), Landfill 7 (FTLE-15), and the Open Detonation Range (FTLE-27) will be performed in-house. Assuming that observed trends continue, it is believed that monitoring requirements will be significantly reduced in FY06.

### ***IRP Cleanup Exit Strategy***

Adherence to the Cleanup Strategies and Schedules set forth in the IAP will insure a successful and timely completion of the IRP program at Fort Lee.

### **Previous Studies**

#### **1982**

- Installation Assessment of the US Army Quartermaster Center and Fort Lee, VA, Environmental Science and Engineering Inc., Gainesville, FL., Apr-82

#### **1987**

- Environmental Baseline Survey: Fort Lee, Versar, Inc., Springfield, VA, Jun-87
- Environmental Operations Review No. 43--21-1372-88, U. Army Quartermaster Center & Fort Lee, US Army Environmental Hygiene Agency, Aberdeen, MD, Nov-87

#### **1989**

- Soil Gas Survey Report Petroleum Training Facility, Target Environmental Services, Inc., Nov-89
- Geohydrologic Study No. 38-26-K913-90, Ft. Lee, VA, 27 Nov - 4 Dec 89,

#### **1990**

- US Army Environmental Hygiene Agency, Aberdeen, MD, Mar-90
- Preliminary Investigation Report Petroleum Training Facility, US Geological Survey, Oct-90

#### **1991**

- Schuylkill Landfill SI, James M. Montgomery Consulting Engineers, Inc., Herndon, VA, 1-Sep-91

#### **1992**

- Site Characterization Report Petroleum Training Facility, James M. Montgomery Consulting Engineers, Inc., Herndon, VA, 1-Mar-92
- Schuylkill Landfill SI Report, James M. Montgomery Consulting Engineers, Inc., Herndon, VA, Nov-92
- PA/SI Report for Eight Sites, James M. Montgomery Consulting Engineers, Inc., Herndon, VA, 1-Dec-92

#### **1993**

- Schuylkill Landfill Closure Plan, KCI Technologies, Inc., Baltimore, MD, 1-Apr-93

#### **1994**

- Final Annual Sampling Report, 1994, Petroleum Training Facility, Ft. Lee, VA, Montgomery Watson Consulting Engineers, Inc., Herndon, VA, Jun-94
- Final Report: Evaluation of Monitoring Well MW2742, Montgomery Watson Consulting Engineers, Inc., Herndon, VA, 1-Dec-94

#### **1995**

- Final Annual Sampling Report, 1995, Petroleum Training Facility, Ft. Lee, VA, The Information Broker, Inc., Saluda, VA, 1-Jul-95

### 1995, continued

- Preliminary Draft, Analytical Results Report for RI/FS and PL PA/SI Sites, Fluor Daniel, Inc. Greenville, SC, Jul-95
- Preliminary Draft, Analytical Results Report for PA/SI at Ft. Lee, Fluor Daniel, Inc. Greenville, SC, 1-Jul-95
- Confirmation Sampling Report, Inactive Fire Training Site, Fluor Daniel, Inc. Greenville, SC, Nov-95
- Confirmation Sampling Report, Landfill 10 Site, Fluor Daniel, Inc. Greenville, SC, 1-Nov-95
- Confirmation Sampling Report, Open Detonation Range, Fluor Daniel, Inc. Greenville, SC, 1-Nov-95
- Confirmation Sampling Report, Outdoor Recreation Area, Fluor Daniel, Inc. Greenville, SC, Nov-95
- Preliminary Draft, PA/SI Petroleum Laboratory Facility, Fluor Daniel, Inc. Greenville, SC, 1-Dec-95
- Preliminary Draft, PA/SI for Six Sites at Ft. Lee, VA, Fluor Daniel, Inc. Greenville, SC, 1-Dec-95

### 1996

- Confirmation Sampling Report, Inactive Fire Training Site, Fluor Daniel, Inc. Greenville, SC, 1-Aug-96
- Confirmation Sampling Report, Open Detonation Range, Fluor Daniel, Inc. Greenville, SC, 1-Aug-96
- Confirmation Sampling Report, Outdoor Recreation Area, Fluor Daniel, Inc. Greenville, SC, Aug-96
- Confirmation Sampling Report, Landfill 10, Fluor Daniel, Inc. Greenville, SC, Aug-96
- Draft PA/SI, Petroleum Laboratory Facility, Fluor Daniel, Inc. Greenville, SC, Sep-96
- Draft PA/SI for Six Sites at Ft. Lee, VA, Fluor Daniel, Inc. Greenville, SC, 1-Sep-96
- Preliminary Draft, RI Report, RL Site, MB Site, and MIF Site, Volumes, 1-3, Fluor Daniel, Inc. Greenville, SC, Oct-96
- Draft Risk Assessment Workplan for the WT Site, Fluor Daniel, Inc. Greenville, SC, Dec-96

### 1997

- Draft Decision Document (DD): Petroleum Laboratory Site, Fluor Daniel, Inc. Greenville, SC, Jan-97
- Draft DD: Former Pesticide Mixing Area, Fluor Daniel, Inc. Greenville, SC, Jan-97
- Draft DD: Landfill 14 Site, Fluor Daniel, Inc. Greenville, SC, Jan-97
- Draft DD Landfill 15 Site, Fluor Daniel, Inc. Greenville, SC, Jan-97
- Draft DD: Former Wastewater Treatment Facility Site, Fluor Daniel, Inc. Greenville, SC, Jan-97

### 1997, continued

- Draft DD: Former Petroleum Training Facility Site, Fluor Daniel, Inc. Greenville, SC, Jan-97
- Draft DD: Landfill 16 Site, Fluor Daniel, Inc. Greenville, SC, Jan-97
- Draft DD: Landfill 10 Site, Fluor Daniel, Inc. Greenville, SC, Jan-97
- Draft DD: Outdoor Recreation Area Site, Fluor Daniel, Inc. Greenville, SC, Jan-97
- Draft DD: Outdoor Recreation Area Site, Fluor Daniel, Inc. Greenville, SC, Jan-97
- Draft DD: Open Detonation Range Site, Fluor Daniel, Inc. Greenville, SC, Jan-97
- Draft DD: Inactive Fire Training Site, Fluor Daniel, Inc. Greenville, SC, Jan-97
- Draft RI Report: Reformatory Road Landfill Site, Maintenance Building Site, Military-in-the Field Site, Fluor Daniel, Inc. Greenville, SC, Apr-97
- Final PA/SI for Six Sites at Fort Lee, VA, Fluor Daniel, Inc. Greenville, SC, May-97
- Preliminary Draft FS Report: Reformatory Road Landfill Site, Maintenance Building Site, Military-in-the Field Site, Fluor Daniel, Inc. Greenville, SC, Sep-97
- Draft Baileys Creek Environmental Baseline Study, Fluor Daniel, Inc. Greenville, SC, Oct-97
- Preliminary Draft RI Report: Former Wastewater Treatment Facility, Fluor Daniel, Inc. Greenville, SC, Dec-97

### 1998

- Draft Confirmation Sampling Report for Landfill 15 Site, Fluor Daniel, Inc. Greenville, SC, Jan-98
- Draft Confirmation Sampling Report for Landfill 16, Fluor Daniel, Inc. Greenville, SC, Jan-98
- Draft Confirmation Sampling Report for Landfill 15 Site, Fluor Daniel, Inc. Greenville, SC, Jan-98
- Draft Confirmation Sampling Report for Landfill 16, Fluor Daniel, Inc. Greenville, SC, Jan-98
- Draft SI for Landfill 14 Site, Fluor Daniel, Inc. Greenville, SC, Jan-98
- Draft Confirmation Sampling Report: Former Petroleum Training Facility, Fluor Daniel, Inc. Greenville, SC, Feb-98
- Draft Confirmation Sampling Report: Former Petroleum Training Facility, Fluor Daniel, Inc. Greenville, SC, Feb-98
- Final Analytical Results Report for Landfill 14 SI and Confirmatory Sampling, Fluor Daniel, Inc. Greenville, SC, Feb-98
- Final Analytical Results Report for the Former Petroleum Training Facility and Landfill 15 Confirmatory Sampling, Fluor Daniel, Inc. Greenville, SC, Feb-98
- Final Analytical Results Report for the Environmental Baseline Survey for Bailey Creek, Fluor Daniel, Inc. Greenville, SC, Feb-98



### **1998, continued**

- Final Sampling and Analysis Plan for RI for Landfill 10, Fluor Daniel, Inc. Greenville, SC, Feb-98
- Final Quality Assurance project Plan for Landfill 10, Fluor Daniel, Inc. Greenville, SC, Feb-98
- Final Baseline Environmental Survey - Bailey Creek, Fluor Daniel, Inc. Greenville, SC, Feb-98
- Draft FS for RL, MB, and MIF Sites, Fluor Daniel, Inc. Greenville, SC, Mar-98
- Draft RI Report - WT Site, Fluor Daniel, Inc. Greenville, SC, Apr-98
- Draft QCSR Report - LF Site, Fluor Daniel, Inc. Greenville, SC, Apr-98
- Draft Analytical Results Report for Landfill 10, Fluor Daniel, Inc. Greenville, SC, May-98
- Preliminary Draft RI Report for Landfill 10, Fluor Daniel, Inc. Greenville, SC, Jul-98
- Draft Workplan for PM Site Phase II RI, Fluor Daniel, Inc. Greenville, SC, Jul-98
- Final Workplan - PM Site Phase III, Fluor Daniel, Inc. Greenville, SC, Oct-98
- Draft RI Report for Landfill 10 Site, Fluor Daniel, Inc. Greenville, SC, Nov-98
- Final Sampling and Analysis Plan for the Former Pesticide Mixing Area Site, Fluor Daniel, Inc. Greenville, SC, Nov-98
- Final QA Project Plan for the Former PM Site, Phase III, Fluor Daniel, Inc. Greenville, SC, Nov-98
- Draft Closeout Report for the Inactive Fire Training Area, Fluor Daniel, Inc. Greenville, SC, Dec-98
- Interim Final Confirmation Sampling Report for Landfill 16, Fluor Daniel, Inc. Greenville, SC, Dec-98

### **1999**

- Final RI Report - Former Wastewater Treatment Facility, Fluor Daniel, Inc. Greenville, SC, Jan-99
- Final Surface Soils Background Metals and Anthropogenic Pesticides Report, Fluor Daniel, Inc. Greenville, SC, Jan-99
- Draft Analytical Results Report for the Former Pesticide Mixing Area Site, Fluor Daniel, Inc. Greenville, SC, Feb-99
- Draft DD - Former Wastewater Treatment Facility for the RI, Fluor Daniel, Inc. Greenville, SC, Mar-99
- Final Confirmation Sampling Report - Landfill 15, Fluor Daniel, Inc. Greenville, SC, Mar-99
- Final Confirmation Sampling Report - Landfill 16, Fluor Daniel, Inc. Greenville, SC, Mar-99
- Draft DD - Landfill 15, Fluor Daniel, Inc. Greenville, SC, Mar-99
- Draft DD - Landfill 16, Fluor Daniel, Inc. Greenville, SC, Mar-99
- Preliminary Draft RI Report for the Former Pesticide Mixing Area, Fluor Daniel, Inc. Greenville, SC, Mar-99
- Final RI Report for Landfill 10 Site, Fluor Daniel, Inc. Greenville, SC, Mar-99

### 1999, continued

- Draft DD for Landfill 10 Site, Fluor Daniel, Inc. Greenville, SC, Apr-99
- Final Close out Report for the Inactive Fire Training Area, Fluor Daniel, Inc. Greenville, SC, Apr-99
- Interim Final SI for Landfill 14, Fluor Daniel, Inc. Greenville, SC, Apr-99
- Draft FS for the Former Wastewater Treatment Facility, Fluor Daniel, Inc. Greenville, SC, May-99
- Final Analytical Results Report for the Former Pesticide Mixing Area, Fluor Daniel, Inc. Greenville, SC, May-99
- Draft RI Report for the Former pesticide Mixing Area, Fluor Daniel, Inc. Greenville, SC, May-99
- Final DDs: (1) Landfill 15 Site; (2) Landfill 16 Site; and (3) Former Wastewater Treatment Facility, Fluor Daniel, Inc. Greenville, SC, May-99
- Final DD - Landfill 10 Site, Fluor Daniel, Inc. Greenville, SC, Jun-99
- Draft DD - Landfill 14 Site, Fluor Daniel, Inc. Greenville, SC, Aug-99
- Draft FS Report for Landfill 14 Site, Fluor Daniel, Inc. Greenville, SC, Sep-99
- Draft FS for Landfill 10 Site, Fluor Daniel, Inc. Greenville, SC, Sep-99
- Final FS Report for the Former Wastewater Treatment Facility, Fluor Daniel, Inc. Greenville, SC, Sep-99
- Draft FS Report for the Open Detonation Range Site, Fluor Daniel, Inc. Greenville, SC, Oct-99
- Draft Work Plan for Water Balance Study - Reformatory Road Landfill Site, Fluor Daniel, Inc. Greenville, SC, Oct-99
- Draft Interim Action Work Plan for the Reformatory Road Landfill Interim Removal Action, Fluor Daniel, Inc. Greenville, SC, Oct-99
- Draft Project Work Plan for Landfill 14, Fluor Daniel, Inc. Greenville, SC, Dec-99
- Draft Project Work Plan for Open Detonation Range Site, Fluor Daniel, Inc. Greenville, SC, Dec-99

### 2000

- Final FS for Landfill 10 Site, IT Corp., Greenville, SC, Jan-00
- Draft IRA Plan for Reformatory Road Landfill Site, IT Corp., Greenville, SC, May-00
- Draft Proposed Plan for RA at the Former Wastewater Treatment Facility, IT Corp., Greenville, SC, Jun-00
- Draft Engineering Evaluation and Cost Analysis for the Former Pesticide Mixing Area Interim Removal Action, IT Corp., Greenville, SC, Jul-00
- Final RI Report for the Former Pesticide Mixing Area Site, IT Corp., Greenville, SC, Jul-00
- Draft Interim Action Plan - Landfill 14, IT Corp., Greenville, SC, Aug-00
- Final Interim Action Plan for the Reformatory Road Landfill Site, IT Corp., Greenville, SC, Aug-00
- Draft Interim Action Plan for Landfill 15, IT Corp., Greenville, SC, Aug-00
- Site Health and Safety Plan for the Reformatory Road Landfill, IT Corp., Greenville, SC, Aug-00

### 2000, continued

- Draft Contractor Quality Control Plan for the Reformatory Road Landfill Site, IT Corp., Greenville, SC, Aug-00
- Letter Report for Landfill 14 Boundary Determination, IT Corp., Greenville, SC, Aug-00
- Draft Contractor Quality Control Plan for Landfill 14 Interim Action, IT Corp., Greenville, SC, Sep-00
- Draft Contractor Quality Control Plan for Landfill 15 Interim Action, IT Corp., Greenville, SC, Sep-00
- Site Safety and Health Plan for Landfill 14, IT Corp., Greenville, SC, Sep-00
- Site Safety and Health Plan for Landfill 15, IT Corp., Greenville, SC, Sep-00
- Final Proposed Plan for RA - Former Wastewater Treatment Facility, IT Corp., Greenville, SC, Sep-00
- Preliminary Draft RI Workplan - Outdoor Recreation Site, Malcolm Pirnie, Inc., Newport News, VA., Sep-00
- Draft Laboratory QA Plan - Outdoor Recreation Site, Malcolm Pirnie, Inc., Newport News, VA., Sep-00

### 2001

- WT Site - Landfill Cover Study, IT Corp., Greenville, SC, Mar-01
- Interim Action Plan for the Reformatory Road Landfill Site, IT Corp., Greenville, SC, Mar-01
- Outdoor Recreation Area Site, Final RI Work Plan, March 2001, Malcolm Pirnie, Inc., Newport News, VA., Mar-01
- Interim Removal Action Plan for the Former Pesticide Mixing Area, IT Corp., Greenville, SC, Apr-01
- Site Safety and Health Plan for the Former Pesticide Mixing Area, IT Corp., Greenville, SC, Apr-01
- Final Outdoor Recreation Area Work Plan, IT Corp., Greenville, SC, Apr-01
- Interim Action Completion Report - Landfill 15 Site, IT Corp., Greenville, SC, May-01
- Final Confirmatory Sampling Report - PT Site, IT Corp., Greenville, SC, May-01
- Interim Action Completion Report - Landfill 14 Site, IT Corp., Greenville, SC, May-01
- Draft FS - Landfill 10, IT Corp., Greenville, SC, Jun-01
- Draft DD - WT Site, IT Corp., Greenville, SC, Jun-01
- Draft Interim Action Completion Report for the Reformatory Road Landfill, IT Corp., Greenville, SC, Aug-01
- Draft Proposed Plan for RA for Reformatory Road Landfill, IT Corp., Greenville, SC, Sep-01
- Draft Site Monitoring Report for the Former Petroleum Training Facility, IT Corp., Greenville, SC, Oct-01
- Draft Site Monitoring Report for the Military-in-the-Field Training Facility, IT Corp., Greenville, SC, Oct-01
- Draft Quality Control Summary Report for the Former Petroleum Training Facility and the Military-in-the-Field Training Facility, IT Corp., Greenville, SC, Oct-01
- Final Outdoor Recreation Area Work Plan Addendum, Malcolm Pirnie, Inc., Newport News, VA., Dec-01

### 2002

- Technical Memorandum: PA for the Former Fire Station, Shaw Group, Greenville, SC, Jan-02
- Final RI Report Work Plan Addendum, Malcolm Pirnie, Inc., Newport News, VA., Jan-02
- Draft Work Plan, Field Sampling Plan and Quality Assurance Project Plan for the Former Fire Station, Shaw Group, Greenville, SC, Mar-02
- Final Interim Action Completion Report - Landfill 15, Shaw Group, Greenville, SC, Apr-02
- Final Interim Action Completion Report - Landfill 14, Shaw Group, Greenville, SC, Apr-02
- Final FS Report for Landfill 10, Shaw Group, Greenville, SC, Apr-02
- Draft Groundwater Monitoring and Site Inspection Report for Landfill 14, Shaw Group, Greenville, SC, Apr-02
- Outdoor Recreation Area Final RI Report, Malcolm Pirnie, Inc., Newport News, VA., Dec-02
- Draft FS Report for the Former Pesticide Mixing Area , Shaw Group, Greenville, SC, Apr-02
- Interim Removal Action Completion Report for the Former PM Site Ditch, Shaw Group, Greenville, SC, Jun-02
- Closeout Report for Well Abandonment at the Military-in-the-Field Training Facility and the Former Petroleum Training Facility, Shaw Group, Greenville, SC, Jun-02
- Final Work Plan, Field sampling Plan and Quality Assurance Project Plan for the Former Fire Station PA/SI, Shaw Group, Greenville, SC, Jun-02
- Site Safety and Health Plan for the Former Fire Station PA/SI, Shaw Group, Greenville, SC, Jun-02
- Draft Conceptual Design Report- Former Wastewater Treatment Facility, Shaw Group, Greenville, SC, Aug-02
- Final Groundwater Monitoring and Site Inspection Plan for Landfill 14, Shaw Group, Greenville, SC, Aug-02
- Site Safety and Health Plan for Landfill 14, Landfill 15, and Open Detonation Range Sites, Shaw Group, Greenville, SC, Sep-02
- Draft Groundwater Monitoring and Site Inspection Plan - Landfill 15, Shaw Group, Greenville, SC, Sep-02
- Draft Groundwater Monitoring Plan - Open Detonation Range, Shaw Group, Greenville, SC, Sep-02
- Interim Action Plan - Landfill 15 - Addendum 1, Shaw Group, Greenville, SC, Oct-02
- Remedial Design Report - Reformatory Road Landfill, Shaw Group, Greenville, SC, Nov-02
- Draft DD Reformatory Road Landfill, Shaw Group, Greenville, SC, Nov-02
- Draft DD- Landfill 14, Shaw Group, Greenville, SC, Nov-02
- Final DD - Former Wastewater Treatment Facility, Shaw Group, Greenville, SC, Nov-02
- Technical Memorandum - Field Assessment for the Former UST Site, Shaw Group, Greenville, SC, Nov-02

### **2002, continued**

- Draft Conceptual Design Report for Landfill 10, Shaw Group, Greenville, SC, Nov-02
- Draft Proposed Plan and Fact Sheet for Landfill 10, Shaw Group, Greenville, SC, Nov-02

### **2003**

- USAEC DD for the Reformatory Road Landfill Site, Shaw Group, Greenville, SC, Jan-03
- Draft Outdoor Recreation Area Work Plan, Malcolm Pirnie, Inc., Newport News, VA., Feb-03
- Draft Quality Control Summary Report for the PA/SI at the Former Fire Station, Shaw Group, Greenville, SC, Mar-03
- Long-Term Monitoring for Landfill 14 (L4 Site) – Quarter 01, 2003, Shaw Group, Greenville, SC, Apr-03
- Long-Term Monitoring for Landfill 15 (L5 Site) – Quarter 01, 2003, Shaw Group, Greenville, SC, Apr-03
- Long-Term Monitoring for Open Detonation Range (DR Site) – Quarter 01, 2003, Shaw Group, Greenville, SC, Apr-03
- Draft PA/Site Inspection for the Former Fire Station (FS Site), Shaw Group, Greenville, SC, Apr-03

### **2004**

- Final QCS/AR Report, Malcolm Pirnie, Inc., Newport News, VA., Jan-04
- Outdoor Recreation Area Preliminary Draft FS Report, Malcolm Pirnie, Inc., Newport News, VA., Apr-04
- Final RI and QCS/AR Reports, for the Outdoor Recreation Area, Malcolm Pirnie, Inc., Newport News, VA., Jan -04
- Long-Term Monitoring Report for 4<sup>th</sup> Quarter 2003 for Landfill 14 (L4 Site), Shaw Group, Greenville, SC, Jan-04
- Long-Term Monitoring Report for 4<sup>th</sup> Quarter 2003 for Landfill 15 (L5 Site), Shaw Group, Greenville, SC, Jan-04
- Long-Term Monitoring Report for 4<sup>th</sup> Quarter 2003 for the Open Detonation Range (DR Site), Shaw Group, Greenville, SC, Jan-04
- Monitoring Well Evaluation & Sampling Results – Maintenance Building (MB Site), Shaw Group, Greenville, SC, Feb-04
- Draft Remedial Design Report for Landfill 10 (LF Site), Shaw Group, Greenville, SC, Mar-04
- Final PA/SI for the Former Fire Station (FS Site), Shaw Group, Greenville, SC, Mar-04
- Pre-Draft FS for the Outdoor Recreation Area, Malcolm Pirnie, Inc., Newport News, VA., Apr-04
- Long-Term Monitoring Report for 5<sup>th</sup> Quarter 2004 for Landfill 14 (L4 Site), Shaw Group, Greenville, SC, May-04
- Long-Term Monitoring Report for 5<sup>th</sup> Quarter 2004 for Landfill 15 (L5 Site), Shaw Group, Greenville, SC, May-04

### 2004, continued

- Long-Term Monitoring Report for 5<sup>th</sup> Quarter 2004 for the Open Detonation Range (DR Site), Shaw Group, Greenville, SC, May-04
- Draft Remedial Design Report for the Former Wastewater Treatment Facility (WT Site), Shaw Group, Greenville, SC, May-04
- Final Remedial Design Report for Landfill 10 (LF Site) – Corrected pages only, Shaw Group, Greenville, SC, May-04
- Interim Action Completion Report – Landfill 15 (L5 Site) Addendum Number 1, Shaw Group, Greenville, SC, Jun-04
- Final Remedial Design Report for the Former Wastewater Treatment Facility (WT Site), Shaw Group, Greenville, SC, Jul-04
- Long-Term Monitoring Report for 6<sup>th</sup> Quarter 2004 for Landfill 14 (L4 Site), Shaw Group, Greenville, SC, Jul-04
- Long-Term Monitoring Report for 6<sup>th</sup> Quarter 2004 for Landfill 15 (L5 Site), Shaw Group, Greenville, SC, Jul-04
- Long-Term Monitoring Report for 6<sup>th</sup> Quarter 2004 for the Open Detonation Range (DR Site), Shaw Group, Greenville, SC, Jul-04
- Long-Term Monitoring Report for 7<sup>th</sup> Quarter 2004 for Landfill 14 (L4 Site), Shaw Group, Greenville, SC, Oct-04
- Long-Term Monitoring Report for 7<sup>th</sup> Quarter 2004 for Landfill 15 (L5 Site), Shaw Group, Greenville, SC, Oct-04
- Long-Term Monitoring Report for 7<sup>th</sup> Quarter 2004 for the Open Detonation Range (DR Site), Shaw Group, Greenville, SC, Oct-04
- Long-Term Monitoring Report - Revised 6<sup>th</sup> Quarter 2004 Data for Landfill 14 (L4 Site), Shaw Group, Greenville, SC, Oct-04
- Long-Term Monitoring Report - Revised 6<sup>th</sup> Quarter 2004 Data for Landfill 15 (L5 Site), Shaw Group, Greenville, SC, Oct-04
- Draft FS for the Outdoor Recreation Area, Malcolm Pirnie, Inc., Newport News, VA., Nov-04
- Draft Human Health Risk Assessment Workplan - Former Pesticide Mixing Area (PM Site), Shaw Group, Greenville, SC, Nov-04
- Draft Long-Term Monitoring Evaluation Work Plan - Maintenance Building (MB Site), Shaw Group, Greenville, SC, Nov-04
- Draft Quality Control Summary Report Addendum - PA/Site Inspection for the Former Fire Station (FS Site), Shaw Group, Greenville, SC, Dec-04
- Site Safety and Health Plan for Long-Term Monitoring Well Evaluation at Maintenance Building (MB Site), Shaw Group, Greenville, SC, Dec-04

### 2005

- Response to Comments for the Draft Outdoor Recreation Area FS Report. Malcolm Pirnie, Inc. Newport News, VA. Mar-05
- Final Human Health Risk Assessment Workplan for the Former Pesticide Mixing Area (PM Site). Shaw Group, Greenville, SC. Apr-05
- Draft RI Addendum for the Former Pesticide Mixing Area (PM Site). Shaw Group, Greenville, SC. Jul-05

### **2005, continued**

- Draft Groundwater Monitoring Report – Landfill 14. Shaw Group, Greenville, SC. Jul-05
- Draft Groundwater Monitoring Report - Landfill 15, Shaw Group, Greenville, SC. Jul-05
- Draft Groundwater Monitoring Report - Open Detonation Range. Shaw Group, Greenville, SC. Jul-05
- Draft Long-term Monitoring Evaluation Report for the Maintenance Building Site (MB Site). Shaw Group, Greenville, SC. Oct-05
- Landfill 10 RA Plan. EM Federal Corp., Washington, DC Nov-05
- Landfill 10 Site Specific Pollution Prevention Plan, Operations & Maintenance Manual, and Spill Prevention Controls & Countermeasures. EM Federal Corp., Washington, DC Nov-05
- Landfill 10 Contractor's Quality Control Plan. EM Federal Corp. Washington, DC Nov-05
- Landfill 10 Site Safety and Health Plan. EM Federal Corp., Washington, DC Nov-05
- Comments on EM Federal Workplan for the Landfill 10 Site. Malcolm Pirnie, Inc. Newport News, VA. Nov-05
- Final Groundwater Monitoring Report – Landfill 14. Shaw Group, Greenville, SC. Dec-05
- Final Groundwater Monitoring Report - Landfill 15, Shaw Group, Greenville, SC. Dec-05
- Final Groundwater Monitoring Report - Open Detonation Range. Shaw Group, Greenville, SC. Dec-05

# FORT LEE

## Installation Restoration Program Site Descriptions



## SITE DESCRIPTION

Storage and mixing of pesticides at Fort Lee were conducted at Building 6203 from the 1940s through the 1970s. Building 6203 was located at the intersection of 19th Street and Shop Road in the cantonment area. Pesticides and rinse water were disposed of in an open ditch which ran behind the building. A perforated disposal tank, and contaminated soil, was removed in 1975 and the excavated area was backfilled and covered with a small concrete slab. The original building was replaced during the early 1980s, and a storm sewer was installed to drain the site. The storm sewer transports water ~150 feet to a ditch that drains the area. Sampling conducted during the PA/SI in 1995 found chlordane levels as high as 4.4 parts per million in the surface sediments of the drainage ditch several hundred feet downstream of the storm sewer outfall. Lindane was also detected above action levels in groundwater. Sampling during the RI/FS revealed that herbicides (2,4-D), VOCs, polychlorinated biphenyl (PCBs), and dioxin variants were also present. Pesticides were also found in a ditch that receives drainage from the area. An IRA to remove pesticide-contaminated soil from the drainage ditch was completed in FY01.

An expanded RI/FS was completed in FY99 and found that there was also VOC (carbon tetrachloride and chloroform) contamination within the boundaries of the site, but upgradient of the mixing area. This contamination appeared to be unrelated to prior activities at the Pesticide Mixing Area. Based upon a review of historical aerial photographs, interviews, and a records search, it seems that the source of this contamination may have been an old Fire Station located upgradient of the Pesticide Mixing Area. This Fire Station was operated continuously from 1941 until it was demolished in the early 1970s and was located near the source of the carbon tetrachloride/chloroform plume. Additional fieldwork conducted at the site in 2002 confirmed that the source of the plume was located near the site of the old Fire Station at what may have been an old storage shed. The RI risk assessment and fate and transport model were updated in FY06 to include these data. The RI will be finalized in early 2006.

## STATUS

**REGULATORY DRIVER:** CERCLA

**RRSE:** High

**CONTAMINANTS:** Pesticides, Herbicides, BNAs, PCBs, VOCs

**MEDIA OF CONCERN:**

Soil, Groundwater

Phases	Start	End
PA .....	198111 .....	198204
SI .....	199409 .....	199512
IRA .....	199906 .....	200107
RI/FS .....	199602 .....	200605
LTM .....	200606 .....	201606

**RC DATE:** 200605

### **CLEANUP STRATEGY**

The RI has been updated to include the additional VOC plume. Depending upon the results of the RI, enhanced remedial efforts may be necessary. Groundwater monitoring may be required for up to 10 years. This site is anticipated to go to PBC within the next year.

# FTLE-06

## Buried Sewage Treatment Plant

### SITE DESCRIPTION

Between 1941 and 1979, Fort Lee operated a primary sewage treatment plant (STP) near the intersection of 2<sup>nd</sup> Street and C Avenue and discharged effluent to Baileys Creek. It did not satisfy state and federal regulations for secondary treatment. The sewage treatment plant was shut down, demolished, and buried in-place in 1979.

Since demolition of the STP, the area has been used as a contractor staging area and has also been used as a dump site for construction and building debris. It was also discovered during the PA/SI that this site had several other buildings on it, including a large pesticide storage building and an incinerator that was used to dispose of sewage sludge and other wastes. As-built drawings of the STP were located and matched to present day maps of the site to locate the exact location of the pesticide storage building, and other structures on the sites. A digital comparison of 1992 topography from aerial photography with topography shown on the as-built drawings from 1941 shows that, in places, more than twenty feet of material has been dumped on the site.

Pesticides were detected in soil samples from five of six borings installed at the site. 4,4'-Dichlorodiphenyldichloroethene levels were as high as 550 parts per million (ppm); 4,4'-Dichlorodiphenyldichloroethane levels were as high as 480 ppm. Chlordane levels exceeded 38 ppm, and Dieldrin levels were as high as 130 ppm. VOCs were detected in soil samples 1,1-Dichloroethene @ 6.0 ppm as were BNAs such as Benzo(a)pyrene (.46ppm). Beryllium and lead levels also exceeded soil action levels. Groundwater samples exceeded action levels for Tetrachloroethene (200 parts per billion [ppb];) and Bromodichloromethane (1.3 ppb). Action levels were also exceeded for manganese and thallium. Two major pathways for contamination transport exist at this site: surface transport of pesticides to Baileys Creek and subsurface transport of pesticides from soils to groundwater. Groundwater flow at the site is toward Baileys Creek. In addition, piping at the facility was abandoned in-place and may serve as a conduit for contamination to reach Baileys Creek, which is located less than 50 feet from the edge of the filled-in area. The RI was completed in 1998 and was submitted to the VDEQ for review. The VDEQ indicated that closure of the site should be in compliance with VA Solid

### STATUS

**REGULATORY DRIVER:** CERCLA

**RRSE:** High

**CONTAMINANTS:** Pesticides, VOCs, BNAs, Metals

**MEDIA OF CONCERN:**  
Soil, Groundwater

Phases	Start	End
PA .....	198111 .....	198204
SI .....	199409 .....	199512
RI/FS.....	199610 .....	199808
RD.....	199908 .....	200408
RA(C).....	200602 .....	200712
LTM.....	200801 .....	201809

**RC DATE:** 200712

## FTLE-06

### Buried Sewage Treatment Plant, *cont.*

requirements which means that the site will need to be graded and covered with at least two feet of clean fill. Access to the site must also be restricted and should include perimeter fencing and other institutional controls to limit access. A RD was funded in FY99 and was completed in 2004. To support the RD, a landfill cover study was performed in Oct 00. The purpose of the study was to evaluate the potential for subsidence in areas of the old STP that could result from unmanaged placement and compaction procedures followed during filling of the area. The second objective was to verify the presence or absence of defined landfill cells at the site and determine the thickness of the existing cover material. Trenches and test pits across the site indicated the presence of a previously unknown three-four acre World War II era landfill in the northeastern portion of the site. Observed buried material consisted of incinerated household and medical wastes such as bottles, metal items and ceramic items. A large quantity of coal ash was also found. While this will not change the closure procedure for the site, it will increase the area to be covered. It is estimated that at least 14 acres will require some additional cover material.

#### **CLEANUP STRATEGY**

Install at least two feet of cover material (~13 acres) and regrade the site to manage stormwater runoff. RA is scheduled to be awarded under a PBC in FY07. Groundwater monitoring (five wells) may be required for up to 10 years.

# FTLE-11

## Closed Landfill #14

### SITE DESCRIPTION

Located near the intersection of River Road and Temple Avenue, Landfill 14 served as a construction debris landfill during the late 1970s (Permit No. 237). The 12 acre landfill began operation in 1977 and was used for only a few years. Debris buried at the site reportedly includes demolished hospital buildings that contained asbestos. The former landfill site is adjacent to a mobile home park, and was often visited by children living in the area.

A SI conducted at the site in September 1997 detected low levels of groundwater and surface water contamination. Leachate from the landfill is entering a stream leaving the site and which flows into the Appomattox River. An additional downgradient monitoring well was installed in November 1998.

### STATUS

**REGULATORY DRIVER:** CERCLA

**RRSE:** Medium

**CONTAMINANTS:** VOCs, BNAs, Metals, Asbestos

**MEDIA OF CONCERN:**

Soil, Groundwater

Phases	Start	End
PA .....	198111 .....	198204
SI .....	199409 .....	199810
RI/FS .....	199812 .....	199903
RD .....	199812 .....	199908
RA(C) .....	200006 .....	200012
LTM .....	200012 .....	201309

**RC DATE:** 200012

Because this was a permitted landfill, the VDEQ required that the site be closed in accordance with VA Solid Waste Regulations. This included determining the extent of the waste cells, covering the waste cells with at least two feet of cover material, and installing a fence around the perimeter of the permitted area. LTM was also required. In 2000, additional cover material was placed on the site, and a perimeter fence was installed.

### CLEANUP STRATEGY

Intrawell statistical analyses will be carried out after eight quarters of background sampling are available. Results of these analyses (i.e., contaminant levels increasing or decreasing) will be used to support preparation of the DD in FY06.

## FTLE-15 Closed Landfill #7

## FTLE-16 Closed Landfill #8

### SITE DESCRIPTION

These two landfills are located adjacent to one another on Home Road and have both been used on several occasions. **Landfill #7** was operated prior to 1949; however, it was also used again during the late 1970s.

It is not known when **Landfill #8** opened; however, it reportedly was used as late as the early 1980s. Contents of Landfill #8 were leaves, stumps, and logs, and assorted construction debris.

At Landfill #7, Fort Lee has constructed a Fire Training Tower. During the installation of a water line at the site, waste material including medical waste dating to the mid-1940s was discovered. A PA was completed for both landfills, and it indicated that a SI was required to determine whether groundwater contamination was occurring. Analyses of soil samples in 1995 found that action levels were exceeded for arsenic, beryllium, thallium, zinc and lead at Landfill #7. Groundwater samples exceeded action levels for arsenic, manganese and thallium. VOCs and BNAs were also detected below action levels. Analyses of groundwater samples at Landfill #8 exceeded action levels for beryllium, chromium, manganese, and lead. Soil action levels were exceeded for barium and lead. No VOCs or BNAs were detected above action levels.

Levels of metals and VOCs at both landfills indicate that contaminants have been released at these sites. These sites are less than 700 feet from a new family housing area and are also used for training activities; hence there are potential human receptors of contamination. Access to the area is restricted and personnel involved with training activities at the site are instructed how to minimize their potential exposure to waste materials. Although contaminant levels were low, the VDEQ requested confirmatory sampling be undertaken to define the source of metals found in the soils and groundwater, and to determine the

### STATUS – FTLE-15

**REGULATORY DRIVER:** CERCLA

**RRSE:** Medium

**CONTAMINANTS:** VOCs, BNAs, Metals, Hospital Waste

**MEDIA OF CONCERN:**  
Soil, Groundwater

Phases	Start	End
PA .....	198111 .....	198204
SI .....	199409 .....	199909
RD .....	199906 .....	200008
IRA .....	200008 .....	200012
RA(C) .....	200008 .....	200109
LTM .....	200109 .....	201110

**RC DATE:** 200109

### STATUS – FTLE-16

**REGULATORY DRIVER:** CERCLA

**RRSE:** Low

**CONTAMINANTS:** VOCs, BNAs, Metals

**MEDIA OF CONCERN:**  
Soil, Groundwater

Phases	Start	End
PA .....	198801 .....	198804
SI .....	199409 .....	200110
RI/FS .....	200709 .....	200906
RD .....	200907 .....	200908
RA(C) .....	200909 .....	201008
LTM .....	201009 .....	202009

**RC DATE:** 201008

## **FTLE-15 Closed Landfill #7**

## **FTLE-16 Closed Landfill #8, cont.**

extent of contamination so that risk could be estimated. Confirmatory sampling was undertaken in Fall 1997. After reviewing these data, the VDEQ concluded that interim actions to mitigate potential ecological risk were required at both sites. Landfill boundary delineation must be completed using exploratory trenching, and grading of existing cover material and placement of additional cover will be required to meet landfill compliance requirements. LTM of monitoring wells will be required.

Fieldwork at Landfill 7 (FTLE-15) was completed in May 02 and included placement of additional cover material to ensure that there was more than two feet of cover material across the entire site. In addition, drainage at the site was improved by regrading and filling in areas where water had been impounded. LTM using five monitoring wells is underway at Landfill 7 and will be used to develop a DD after eight quarters of background data are available. Additional work at Landfill 8 (FTLE-16) is dependent upon funding.

### **CLEANUP STRATEGY**

A RI is proposed in FY07 for final closure documentation for FTLE-16. This is scheduled to be performed under a PBC to be awarded in FY07.

For FTLE-15, intrawell statistical analyses will be carried out after eight quarters of background sampling are available. Results of these analyses (i.e., contaminant levels increasing or decreasing) will be used to support preparation of the DD in FY06.

# FTLE-17

## Closed Landfill #4, #5 and #6

### SITE DESCRIPTION

Prior investigations resulted in a grouping of three adjacent landfills. Various outdoor recreation facilities and several permanent buildings have been located on portions of the abandoned landfills. Landfill #4 operated from approximately 1950 to the early 1960s. Landfill #5 operated from approximately 1949 to the early to mid 1960s. Information indicating when Landfill #6 began operating is not available; however, the landfill was closed circa 1976. Garbage, construction debris, and coal ash were reportedly dumped in this landfill. In Apr 89, a leachate seep was discovered on the northeast side of Landfill #5.

US Army Environmental Hygiene Agency installed six monitoring wells during a preliminary investigation in 1989. The source of contamination was presumed to be above ground tanks located on abandoned Landfill #5.

Additional investigations carried out as part of a PA/SI revealed low levels of petroleum hydrocarbon contamination in groundwater and low levels of halogenated solvents in soils near an upgradient monitoring well.

In Nov 94, several inches of free product was discovered in one of the monitoring wells. The free product appeared to be diesel fuel, the source of which may have been one or more of the four large (1000+ barrel) above ground storage tanks, located at this site until the early 1980s. Direct push water samples, near this well, suggest that contamination is local. Borings at the locations of the large aboveground storage tanks showed total petroleum hydrocarbons (TPH) levels as high as 350 ppm. In 1995, a stream bordering the western side of the landfill started to erode into the landfill. Layers of coal ash and other debris were seen on the bank of the stream, and reddish water was flowing into the stream along the coal ash/soil interface. Portions of this stream (approximately 3/4 mile upstream) had been recently straightened and replaced with a large diameter (approximately six feet) culvert that served as the storm sewer for a housing area. This resulted in significantly higher streamflow during and after heavy rains which caused the erosion. In consultation with the VDEQ, an IRA was carried out to relocate the stream away from the landfill. This IRA was successfully completed in Nov 00 and involved the installation of rock-filled gabions (large wire baskets) and rip rap along more than 450 feet of the stream. There is also evidence that portions of the landfill have begun settling and

### STATUS

**REGULATORY DRIVER:** CERCLA

**RRSE:** High

**CONTAMINANTS:** VOCs, POL, Metals

**MEDIA OF CONCERN:**

Soil, Groundwater

Phases	Start	End
PA .....	198111 .....	198204
SI .....	198904 .....	199109
IRA .....	199810 .....	199912
RI/FS .....	199404 .....	200611
RD .....	200611 .....	200702
RA(C) .....	200703 .....	200709
LTM .....	200710 .....	201609

**RC DATE:** 200709



## FTLE-17

### Closed Landfill #4, #5 and #6, cont.

are slumping downhill. Settling in some of the waste cells of as much as 2-3 feet has occurred in a portion of the landfill located under a softball field. Because of the potential human receptors in the area (i.e., baseball fields, picnic areas) the VDEQ requested that a more comprehensive risk assessment be undertaken. A RI was completed in 2004 and a Draft FS has been submitted to the VDEQ. The VDEQ has requested that a landfill cover thickness study be carried out and used to prepare the Final FS. A DD will be prepared upon completion of the FS.

#### CLEANUP STRATEGY

Replacement and regrading of existing cover material to eliminate areas of settling and slumping may be required. Additional soil cover may also be required in areas where waste is exposed, or the amount of soil cover is less than the required amount. Groundwater monitoring (five wells) may be required. Preparation of the Final FS, RD, RA, and LTM will be performed under a PBC to be awarded in FY07.

## SITE DESCRIPTION

Located near 38<sup>th</sup> Street and H Avenue, Landfill 10 was in operation from the late 1940s to early 1950s. Aerial photographs indicate that the landfill was operated as a trench and fill landfill, where non-specific debris was dumped and covered with soil. Landfill 10 encompasses approximately 12 acres and is heavily wooded.

Landfill 10 is at the boundary of the installation and is less than 100 feet from a trailer park. Until 2005, there was no perimeter fence around Fort Lee, and children from the surrounding area were observed playing on the landfill on many occasions. The site is posted and access to the site is restricted by the perimeter fence. The area was also used for troop training activities, some of which involved digging into the landfill. Intrusive training activities on the landfill were discontinued in the late 1990's.

Confirmatory sampling in 1995 showed pesticide contamination of groundwater. At least one pesticide analyte was detected above action levels in seven of eight water samples collected. Mercury and zinc were also detected above action levels during one sampling event in 1992. Mercury has not been detected since that time. Earlier studies had not sampled for pesticides and were only concerned with metals. The source of contamination is not clear since an upgradient well was also contaminated. The trailer park is on city water and groundwater is not used for drinking. A RI was completed in 1999 and indicated a low human health risk. The FS indicated that the site required some institutional controls to better restrict access to the site by trespassers. The VDEQ has requested that the landfill be closed in accordance with VA Solid Waste Regulations.

A landfill cover study was completed in Nov 00 and found that cover thickness varied across the landfill and was less than the required two feet across most of the landfill. The RD was completed in Sept 2004.

## CLEANUP STRATEGY

A RA which includes removal of trees, regrading the site and placement of a soil cap is underway. Groundwater monitoring (five wells) may be required for up to eight years.

## STATUS

**REGULATORY DRIVER:** CERCLA

**RRSE:** High

**CONTAMINANTS:** Pesticides, Metals

**MEDIA OF CONCERN:**  
Soil, Groundwater

Phases	Start	End
PA.....	198111 .....	199006
SI .....	199006 .....	199109
RI/FS .....	199802 .....	199908
RD .....	200101 .....	200408
RA(C) .....	200406 .....	200608
<b>LTM .....</b>	<b>200609 .....</b>	<b>201508</b>

**RC DATE:** 200608

# FTLE-24

## Maintenance Bldgs #6241 and 6243

### SITE DESCRIPTION

Located near Shop Road and 8<sup>th</sup> Street, the maintenance buildings (6241 and 6243) include vehicle and heavy equipment maintenance, and furniture refinishing operations.

Constructed in 1940-41, french drain dry well systems were designed and installed in each building to receive waste fluids. The fluids were collected by floor drains located inside each building and included transmission fluid, battery acid, crankcase oil, and wash water used for cleaning engine parts. The fluids were channeled through the floor drains into the french drain systems where they infiltrated into the subsurface.

Currently, several dry wells contain standing water, suggesting that the drainage systems may have deteriorated over time. All drainage pipes from these buildings were connected to the sanitary sewer system in the early 1990s.

Vehicle wash activities were conducted adjacent to Building 6242 (FTLE-25) and included general washing of tanker trucks, truck beds and various truck parts. Wash water generated during these operations reportedly was allowed to run off the pad and infiltrate into the ground. USTs located adjacent to the buildings were found to be leaking and have since been removed. The extent of contamination did not appear to be extensive. However, when water lines were replaced in 1996, soil excavated from the pipe trench had to be disposed of as hazardous material and could not be put back in the pipe trench because TPH levels were too high.

The RI/FS found that low levels of contamination were found over perhaps 10 acres, however, significant levels of contamination are found in only a few locations, generally in the vicinity of parking areas. Because the existing analytical data were several years old, the VDEQ requested that a subset of the existing monitoring wells be resampled to determine if levels of contamination had decreased over time. Three additional monitoring wells were also installed in 2005 to determine whether the plume had migrated beyond the original site boundaries. The risk assessment was updated with the new data to include the Johnson-Ettinger Indoor Air Quality Model to determine if building air quality was impacted by groundwater contamination. A Draft Monitoring Evaluation Report has been prepared and is under review by the VDEQ.

### STATUS

**REGULATORY DRIVER:** CERCLA

**RRSE:** Medium

**CONTAMINANTS:** VOCs, BNA, POL, Metals

**MEDIA OF CONCERN:**  
Soil, Groundwater

Phases	Start	End
PA .....	198111.....	198204
SI .....	199006.....	199109
RI/FS.....	199404.....	200208
LTM.....	200208.....	201512

**RC DATE:** 200208

## **FTLE-24**

### **Maintenance Bldgs #6241 and 6243, cont.**

#### **CLEANUP STRATEGY**

The existing Risk Assessment has been updated to address the Indoor Air Quality Model and is in review by the VDEQ. If VDEQ concurs that risk levels are acceptable, then the site will proceed with LTM. If VDEQ concludes that human health risk is present, remedial alternatives will be reconsidered. Additional work at the site will be carried out under a PBC scheduled for award in FY07.

# FTLE-27

## Open Detonation Range

### SITE DESCRIPTION

Located in the safety fan area of the range area of Fort Lee, the two acre detonation range (DR) Site is lightly forested and contains a small intermittent stream or surface wash, flowing from north to south through the site. The site, which is inactive, served as the location for explosive ordnance detonation and disposal during the 1970s and 80s. Prior to that it was the location of a 3.5 inch rocket range and a hand grenade range. The site is relatively remote and entry is restricted, given the presence of nearby active firing ranges. Many detonated and potentially undetonated small arms fragments and 3.5 inch rockets presently litter the site. The site also served as a detonation location for unused and confiscated explosive ordnance for 69 counties in Virginia and West Virginia. Munitions such as cartridges, projectiles, grenades and rockets, in addition to some unknown devices, were placed in a metal bin and ignited with kerosene.

### STATUS

**REGULATORY DRIVER:** CERCLA

**RRSE:** Low

**CONTAMINANTS:** VOCs, BNAs, Metals

**MEDIA OF CONCERN:**  
Soil, Groundwater

Phases	Start	End
PA .....	198111 .....	198204
SI .....	199006 .....	199109
RI/FS .....	199404 .....	199803
RD .....	199812 .....	200008
RA(C) .....	199812 .....	200109
LTM .....	200109 .....	201306

**RC DATE:** 200109

Metal slag located around the area of the burn barrels was collected and removed in 1996. Based on the results of a PA/SI conducted in 1990, no significant contamination was detected and a recommendation for NFA was made. The VDEQ did not concur with the recommendation for NFA and requested that Fort Lee install another upgradient monitoring well and that all of the wells be resampled. This was done in Nov 94 as part of ongoing RI/FS work. Metals were detected above background levels in both groundwater and soil samples. In order to mitigate a potential ecological risk, the VDEQ originally requested that two feet of cover be placed over the immediate area of the ammunition burn barrels. After covering and grading the site NFA would be required at the site. However, the VDEQ reconsidered its position and indicated in FY01 that, because the site was located within the active range area, it would allow the site to be closed out in an "as is" condition provided that a long term management program was implemented.

### CLEANUP STRATEGY

Intrawell statistical analyses will be carried out after eight quarters of background sampling are available. Results of these analyses (i.e., contaminant levels increasing or decreasing) will be used to support preparation of the DD in FY06.

# FTLE-31

## Petroleum Lab/Fire Fighter Training Pits

### SITE DESCRIPTION

This site includes a hazardous waste satellite storage location, a sanitary sewer line servicing a petroleum laboratory that had leaked, and a firefighter training pit. This pit was active from the late 1960s until about 1980.

Soil samples detected TPH, BTEX, and total organic halogens (TOX) in 1991. Results from the 1995 PA/SI indicate that there is no contamination in the vicinity of the hazardous waste storage area and sewer line. There is, however, a significant amount of TPH contamination present at the location of the old fire pit.

Diesel Range Organics were as high as 6,000 ppm in surface sediments near the fire pit. Direct push soil samples were as high as 1,350 ppm at a depth of 11 feet near the location of the abandoned fire pit. Dieldrin, a pesticide, was also detected in surface sediments near the fire pit. The source of the pesticide is unknown. The VDEQ has recommended that an RI/FS be conducted around the area of the fire pit.

### CLEANUP STRATEGY

A RI/FS to determine extent of soil and groundwater contamination is planned in FY07. The RA anticipates the removal of contaminated soil from the fire pit location. Groundwater monitoring will be required. Additional work at the site will be carried out under a PBC scheduled for award in FY06.

### STATUS

**REGULATORY DRIVER:** CERCLA

**RRSE:** Low

**CONTAMINANTS:** POL, TOX, BTEX

**MEDIA OF CONCERN:**

Soil, Groundwater

Phases	Start	End
PA .....	198111 .....	198204
SI .....	199404 .....	199704
RI/FS .....	200610 .....	200707
RD .....	200710 .....	200711
RA(C) .....	200710 .....	200810
LTM .....	200810 .....	201312

**RC DATE:** 200810

# FTLE-32

## Area 10000 Barracks Landfill

### SITE DESCRIPTION

This site was discovered in Oct 96 by a utility contractor during the installation of a fiber optics conduit. A leaking 2,000 gallon heating oil UST was discovered on the edge of the excavation, and was subsequently removed. Clothing, shoes, and other debris were also uncovered at the site.

Groundwater and soil in the area of the tank were contaminated with POL. A review of historical aerial photography showed that there were over 30 two-story barracks in this area. These barracks were demolished and buried at this location during the 1960s. One UST was shared by two barracks buildings which indicates that there could be as many as 10-15 USTs buried in the area.

A tributary of Baileys Creek, which has been culverted, is located less than 200 feet from the site. There was a slight odor of POL at the point where the culverts empty into the main stream; this may be due to USTs at the site. The size of the landfill is ~ 3 acres, and the thickness of building debris is unknown.

### STATUS

**REGULATORY DRIVER:** CERCLA

**RRSE:** Medium

**CONTAMINANTS:** POL, Asbestos

**MEDIA OF CONCERN:**

Soil, Groundwater

Phases	Start	End
PA .....	199610 .....	199610
RI/FS .....	200610 .....	200703
RD .....	200704 .....	200705
RA(C) .....	200706 .....	200708
LTM .....	200709 .....	201608

**RC DATE:** 200708

### CLEANUP STRATEGY

A RI/FS will be performed to determine the nature and extent of contamination. Additional work at the site will be carried out under a PBC scheduled for award in FY06.

## IRP NFA Sites Summary

AEDB-R #	Site Title	Documentation/Reason for NFA	RC Date
FTLE-01	Bldg 6040	There has been no known release at the site; NFA is planned for this site under the IRP.	198204
FTLE-02	230 UST's (47 Leakers)	ER,A funds were not used on this project. NFA is planned under the IRP.	199206
FTLE-03	Haz Waste Storage	No further response is planned under the restoration program.	198204
FTLE-04	Hospital Incinerator	There has been no known release at the site; NFA is planned for this site under the IRP.	198204
FTLE-07	Petroleum Training Facility	The PTF was officially closed out by the VDEQ on 12/1/97 and a lawsuit filed by an adjacent property owner was settled in February 1998. All monitoring and recovery wells were removed in 1998 as per VDEQ requirements and the site has been returned to use as a training area. No LTM is required at the site. NFA is required.	199802
FTLE-08	Motor Pool 1 (240 <sup>th</sup> )	There has been no known release at the site; NFA is planned for this site under the IRP. Because the facility is still in use, it does not meet the criteria for inclusion in the IRP program.	199110
FTLE-09	Motor Pool 2 (Bldgs 6274, 6275)	There has been no known release at the site; NFA is planned for this site under the IRP. Because the facility is still in use, it does not meet the criteria for inclusion in the IRP program.	199110
FTLE-10	Firing Ranges	There has been no known release at the site; NFA is planned for this site under the IRP. Because the facility is still in use, it does not meet the criteria for inclusion in the IRP program.	198204
FTLE-12	Closed Landfills #13	There has been no known release at the site; NFA is planned for this site under the IRP.	198204
FTLE-13	Closed Landfill #12	There has been no known release at the site; NFA is planned for this site under the IRP.	198204
FTLE-14	Closed Landfill #11	There has been no known release at the site; NFA is planned for this site under the IRP.	198204
FTLE-18	Reformatory Road Landfill	The RA has been completed. Future groundwater monitoring (six wells) will be Operations and Maintenance Account funded.	200504
FTLE-20	Construction Debris Burial-Schuylkill LF	NFA is planned for this site under the IRP. LTM is carried out with installation funds.	199501
FTLE-21	Contaminated Grain Burial	There has been no known release at the site; NFA is planned for this site under the IRP.	198204



AEDB-R #	Site Title	Documentation/Reason for NFA	RC Date
	(LF#17)		
FTLE-22	Methyl Bromide Burial (LF#18)	There has been no known release at the site; NFA is planned for this site under the IRP.	198204
FTLE-23	Rocket Launcher Shell Burial (LF#16)	There has been no known release at the site; NFA is planned for this site under the IRP.	198204
FTLE-25	Maintenance Bldg #6242	This site has been combined with FTLE-24 and designated RC in AEDB-R.	199812
FTLE-26	Military In The Field Training Facility	All of the monitoring wells were resampled in Sep 01 and a report was submitted to the VDEQ which indicated that levels of contamination were, in fact, stable or were declining. Based upon this report, VDEQ made the recommendation in Oct 01 to close out the site after properly abandoning the monitoring wells. Well abandonment was completed in summer 2002. NFA is required at the site.	200110
FTLE-28	Block 4100 Area UST	Based on the results of a PA/SI conducted in 1990, no significant contamination was detected and a recommendation for NFA was made. There has been no known release at the site; NFA is planned for this site under the IRP.	199308
FTLE-29	Former Petroleum Training Area	All of the monitoring wells were resampled in Sep 01 and a report was submitted to VDEQ which indicated that levels of contamination were, in fact, stable or were declining. Based upon this report, VDEQ made the recommendation in Oct 01 to close out the site after properly abandoning the monitoring wells. Well abandonment was completed in summer 2002. NFA is required at the site.	200110
FTLE-30	Inactive Fire Training Area	VDEQ reviewed the Closeout Report and has agreed that no remediation is necessary. Although no future actions will be required, the VDEQ requested that two downgradient wells, and one upgradient well, be left at the site in the event future monitoring is warranted. All other monitoring wells can be removed from the site. NFA is required. Seal and remove unnecessary monitoring wells.	199908

**Initiation of IRP:** 1981

## **Past Phase Completion Milestones**

### **1982**

- RCRA Facility Assessment

### **1992**

- PA/SI - (FTLE-07,17,18,19,24,25,26,27,28,30)
- SI - (FTLE-20)

### **1993**

- IRA - (FTLE-07)

### **1994**

- Annual Sampling at PTF (FTLE-07)
- Capping of Schuylkill Landfill (FTLE-20)

### **1996**

- PA/SI - (FTLE-05,06,11,15,16,29)
- SI - (FTLE-31)

### **1999**

- IRA - (FTLE-17)
- SI - (FTLE-11,15,16,29)
- RI/FS - (FTLE-17,18,19,24,25,26,27,30)

### **2000**

- RI/FS - (FTLE-06)
- IRA - (FTLE-11,15,18)

### **2001**

- IRA - (FTLE-05)
- RI/FS - (FTLE-05)

### **2002**

- RD/RA - (FTLE-05)
- RD/RA - (FTLE-18)

### **2003**

- LTM - (FTLE-11,15,27)
- RD - (FTLE-19)

### **2004**

- RI/FS - (FTLE-17)
- LTM - (FTLE-24, FTLE-25)
- RD - (FTLE-06)

### **2005**

- RI/FS - (FTLE-17)
- RA - (FTLE-18)

### **2006**

- RA – (FTLE-19)

### ***Projected Record of Decision (ROD)/DD Approval Dates:***

Reformatory Road Landfill DD - 200609

***Projected Construction Completion Date of IRP:*** 2010

***Schedule for Next Five Year Review:*** FY08

***Estimated Completion Date of IRP (including LTM phase):*** 2020

## FORT LEE IRP SCHEDULE

(Based on current funding)

AEDBR#	PHASE	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
FTLE-05	LTM									201606
FTLE-06	LTM									201809
FTLE-11	LTM									
FTLE-15	LTM									
FTLE-16	RI/FS									
	RD									
	RA(C)									
	LTM									202009
FTLE-17	RD									
	RA(C)									
	LTM									201609
FTLE-19	LTM									201508
FTLE-24	LTM									201512
FTLE-27	LTM									
FTLE-31	RI/FS									
	RD									
	RA(C)									
	LTM									
FTLE-32	RI/FS									
	RD									
	RA(C)									
	LTM									201608

## Prior Years Funds

**Total Funding up to FY04: \$22,248K**

Year	Site Information	Expenditures	FY Total
<b>FY05</b>	RA(C) (FTLE-18).....	\$128.4K	
	RA(C) (FTLE-19).....	\$2,109.3K	<b>\$2,237.7K</b>

**Total Prior Year Funds: \$24,485.7K**

## Current Year Funds

Year	Site Information	Requirements	FY Total
<b>FY06</b>	FTLE-05 - LTM.....	\$90K	
	FTLE-06 - RA(C).....	\$1725K	
	FTLE-11 - LTM.....	\$26K	
	FTLE-15 - LTM.....	\$32K	
	FTLE-19 - LTM.....	\$69K	
	FTLE-24 - LTM.....	\$101K	
	FTLE-27 - LTM.....	\$19K	<b>\$2062K</b>

**Total Requirements FY06: \$2,062K**

**Total Future Requirements: \$5,572K**

**Total IR Program Cost (from inception to completion of the IRP): \$32,119.7K**

# FORT LEE

## Military Munitions Response Program

**Fort Lee Total AEDB-R Sites/RC Sites:** 2/0

**AEDB-R Site Types**

1 Unexploded Munitions/Ordnance  
1 Firing Range

**Most Widespread Contaminants of Concern:** UXO, OE, MC

**Media of Concern:** Soil

**Completed REM/IRA/RA:** None to date

**Total MMRP Funding**

Prior Years (up to FY05): .....	\$ 50,000
Current Year (FY06):.....	\$ 0
Future Requirements (FY07+): ...	\$ 8,586,000
Total: .....	\$ 8,636,000

**Duration of MMRP**

Year of MMRP Inception: 2001  
Year of MMRP RC: 2017  
Year of MMRP Completion Including LTM: 2047

# MMRP Contamination Assessment

## ***MMRP Contamination Assessment Overview***

The Department of Defense (DoD) has established the MMRP under Defense Environmental Restoration Program (DERP) to address DoD sites with munitions and explosives of concern (MEC) including UXO, discarded military munitions (DMM), and MC.

The United States (US) Army's (Army) inventory of Closed, Transferring, and Transferred (CTT) Military ranges and sites, has identified sites eligible for action under MMRP.

The MMRP eligible sites include other than operational ranges where UXO, DMM and MC is known or suspected and the release occurred prior to September 30, 2002. Properties classified as operational ranges are not eligible and, therefore, are excluded from the MMRP program.

The MMRP began in the late 1990s as a result of key drivers such as processes outlined in the National Contingency Plan (40 CFR 300) as authorized by the Comprehensive Environmental Response, Liability Act of 1980, 42 US Code (U.S.C.) 9605, as amended by the Superfund Amendments and Reauthorization Act of 1986, Pub. L. 99-499, (hereinafter CERCLA).

The process began with three phases of range inventories. Phase I consisted of installations completing an initial data call. USAEC managed the implementation Phases II and III of the MMRP inventory.

The Phase II inventory dealt with active and inactive range considerations. Phase III involved the CTT range inventory conducted in 2002. Included were extensive mapping, data collection for upload to the Army Range Inventory Database, conducting of an assessment on explosives safety risk using the Risk Assessment Code (RAC) methodology for CTT ranges or sites with UXO or DMM identified in the inventory, and the determination of which sites on the inventory potentially qualify for the MMRP.

## ***MMRP Cleanup Exit Strategy***

Fort Lee plans to complete the SI by 2007 and execute follow on phases/actions as required in the individual site cleanup strategies.



### ***MMRP Previous Studies***

#### **2002**

- US Army CTT Range/Site Inventory for Fort Lee, VA. 23 August 2002. Malcolm Pirnie, Inc. 300 East Lombard Street, Suite 610, Baltimore, MD 21202

# FORT LEE

## Military Munitions Response Program Site Descriptions

# FTLE-001-R-01

## Farrar Island

### SITE DESCRIPTION

Farrar Island is a 505 acre area along the James River located approximately 10 miles north of the current Fort Lee installation boundary. Farrar Island served as an impact area for artillery during the WWI time frame from ordnance that was fired from the area known as Dutch Gap. The artillery range was later named Camp McGlaughlin and was used extensively by all of Camp Lee's artillery units for service firing of 3 inch and later 4.7 inch guns. Today, Dominion Resources, Inc. operates a power generation facility on the island. The rest of the island is contained within Henricus County Park, a portion of which is used for primitive camping. The range is considered transferred because the property is not owned by the Army. The information for the island was obtained from a

1996 report written by the US Army Corps of Engineers (USACE). The investigation team did not physically inspect the island, but according to the Archive Search Report (ASR), it is likely that the island contains OE items including UXO. The USACE Report does not mention the potential for OE items in the water surrounding the island.

### STATUS

**REGULATORY DRIVER:** CERCLA

**RAC SCORE:** 3 - Moderate

**CONTAMINANTS:** UXO, OE, MC

**MEDIA OF CONCERN:** Soil

Phases	Start	End
PA .....	200111 .....	200305
SI .....	200601 .....	200712
RI .....	201110 .....	201209
RD .....	201510 .....	201609
RA(C) .....	201610 .....	201709
LTM .....	201710 .....	204709

**RC DATE:** 201709

### CLEANUP STRATEGY

An installation-wide ASR and a SI will be completed to determine if further action is needed. Currently, the following phases are scheduled to be completed:

- RI/FS to include the installation of groundwater monitoring wells
- RD/RA for the excavation and disposal of contaminated soils

Upon completion of the SI, it will be determined if the RI/FS and RD/RA will be necessary. LTM will consist of six MEC monitoring events and Institutional Controls.

# FTLE-002-R-01

## Small Bore And Machine Gun Range

### SITE DESCRIPTION

The Small Bore and Machine Gun Range, .3 acres, was established during the early 1940s for troop training for WW II. The range had ten firing points for stationary targets and four firing points for moving targets, both for use with the light machine gun (caliber .30). The area was shown on the two maps from 1946 that were reviewed by the inventory team. The range is considered closed.

### CLEANUP STRATEGY

An installation-wide ASR and a SI will be completed to determine if further action is needed. Currently, the following phases are scheduled to be completed:

- RI/FS to include the installation of groundwater monitoring wells
- RD/RA for the excavation and disposal of contaminated soils

### STATUS

**REGULATORY DRIVER:** CERCLA

**RAC SCORE:** 5 – Negligible Risk

**CONTAMINANTS:** UXO, OE, MC

**MEDIA OF CONCERN:** Soil

<b>Phases</b>	<b>Start</b>	<b>End</b>
PA.....	200111	200305
SI.....	200601	200712
RI.....	201110	201209
RD.....	201510	201609
RA(C).....	201610	201709

**RC DATE:** 201709

**Initiation of MMRP:** 2001

**Past Phase Completions**

**2003** • PA Completion of FTLE-001-R-01 and FTLE-002-R-01 (May)

**Projected ROD/DD Approval Dates:** None

**Projected Construction Completion:** 2017

**Schedule for Five Year Reviews:** List next scheduled 5-year review

**Estimated Completion Date of MMRP including LTM:** 2047

## FORT LEE MMRP SCHEDULE

(Based on current funding)

AEDB-R#	PHASE	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
FTLE-001-R-01	RI/FS									
	RD									201609
	RA(C)									201709
	LTM									204709
FTLE-002-R-01	RI/FS									
	RD									201609
	RA(C)									201709

## Prior Years Funds

**Total Funding up to FY04: \$50K**

Year	Site Information	Expenditures	FY Total
FY05	.....	\$0.....	\$0

**Total Prior Year Funds: \$50K**

## Current Year Requirements

Year	Site Information	Requirements	FY Total
FY06	.....	\$0.....	\$0

**Total Requirements FY06: \$0**

**Total Future Requirements: \$8,586K**

**Total MMR Program Cost (from inception to completion of the IRP): \$8,636K**

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## Community Involvement

The Fort Lee Public Affairs Office canvassed the surrounding communities for potential interest in establishing RAB in January 2005. No responses were received from the local community

Based on the results of Fort Lee's efforts to determine interest in forming a RAB, it was determined that there was not enough community interest to establish and sustain a RAB at this time. Another attempt to determine community interest will be undertaken in 2006.

The surrounding community for Fort Lee includes the cities of Petersburg (population of 33,740), Hopewell (population of 22,354), and Colonial Heights (population of 16,897), and the County of Prince George (population of 33,047). Fort Lee is not on the NPL and does not have a TRC.

The IRP program at Fort Lee operates under the guidelines established by the Fort Lee Community Relations Plan, whose implementation and maintenance is the responsibility of the Fort Lee Public Affairs Office.